Location Entry Codes

UNIVERSITY *of* CAMBRIDGE
International Examinations

As part of CIE's continual commitment to maintaining best practice in assessment, CIE has begun to use different variants of some question papers for our most popular assessments with extremely large and widespread candidature, The question papers are closely related and the relationships between them have been thoroughly established using our assessment expertise. All versions of the paper give assessment of equal standard.

The content assessed by the examination papers and the type of questions are unchanged.

This change means that for this component there are now two variant Question Papers, Mark Schemes and Principal Examiner's Reports where previously there was only one. For any individual country, it is intended that only one variant is used. This document contains both variants which will give all Centres access to even more past examination material than is usually the case.

The diagram shows the relationship between the Question Papers, Mark Schemes and Principal Examiner's Reports.

Question Paper	**Mark Scheme**	**Principal Examiner's Report**
Introduction	Introduction	Introduction
First variant Question Paper	First variant Mark Scheme	First variant Principal Examiner's Report
Second variant Question Paper	Second variant Mark Scheme	Second variant Principal Examiner's Report

Who can I contact for further information on these changes?
Please direct any questions about this to CIE's Customer Services team at: international@cie.org.uk

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2009 question paper

for the guidance of teachers

0580, 0581 MATHEMATICS
0580/11, 0581/11   Paper 1 (Core), maximum raw mark 56

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2009 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

UNIVERSITY of CAMBRIDGE
International Examinations

Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0580, 0581	11

Abbreviations

cao	correct answer only
ft	work has been followed through after an error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
soi	seen or implied
ww	without working

Qu.		Answers	Mark	Part Marks
1		<	1	(accept ≤ or both symbols)
2	**(a)**	0.00193(4….) or $1.93(4\ldots) \times 10^{-3}$	1	
	(b)	7.63×10^{-2}	1cao	
3		22	2	M1 for $4500 \div 200$ or $4.5 \div 0.2$
4		30	2	M1 for $a + 5a = 180$ or $6a = 180$ or $5a + 5a + a + a = 360$ or better
5		6.999…. to 7	2	M1 for 156.5 **or** 163.499… to 163.5 seen
6	**(a)**	3	1cao	
	(b)	$y = 3x$ oe	1ft	Allow $y = 3x + 0$ or $y = 3x – 0$ Must be an equation. i.e. $y = \ldots..$
7		328 ± 2 (ie 326 to 330)	2	W1 for **angle** of 32 ± 2 or 58 ± 2 or 148 ± 2 seen on diagram or in working or in the answer space.
8		9.33 or 9.327(…)	2	M1 for $16^2 – 13^2$ as chosen method. Alt. Trig must be complete correct method for M1.
9		35.68	2cao	M1 $30700 \div 79.6$ SC1 for 2840(KES). Units need to be seen in the working or on answer line.
10	**(a)**	$7c – 20d$ www final answer	2	M1 for $15c – 20d – 8c$ or better or W1 for $7c$ or $– 20d$ seen as terms in **final** answer
	(b)	$q(p – q)$ www	1	

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0580, 0581	11

11	(a)	63	1	
	(b)	$\frac{(7\times8-5\times9)}{their\,63}$ oe	M1	
		$\frac{11}{63}$ final answer	A1ft	ft their (a)
12	(a)	$(z =) - 13$	1cao	
	(b)	$(x =) \dfrac{z + y}{2}$ oe final answer	2	M1 for $z + y = 2x$ or $\dfrac{z}{2} = x - \dfrac{y}{2}$ or $-2x = -z - y$ SC1 for answer of form $\dfrac{\pm z \pm y}{\pm 2}$
13	(a)	Correct ruled line with correct arcs and at 30° to 34° to the line *AB*.	W2	W1 for correct ruled line, 30° to 34° to *AB* **(i)** with correct arcs but short of *BC* **or (ii)** reaching *BC* with wrong or absent arcs.
	(b)	105(m) to 112.5(m)	1ft	$15 \times$ their *DB* ($\pm$2mm)
14	(a)	81	1cao	
	(b)	64	1cao	
	(c)	87	1cao	
	(d)	73	1cao	
15	(a)	$15p^4$ final answer	2	W1 for $15p^n$ ($n \neq 0$) or kp^4 ($k \neq 0$)
	(b)	$3q^5$ final answer	2	W1 for $3q^n$ ($n \neq 0$) or kq^5 ($k \neq 0$)
16		21.45 to 21.6 www	4	M1 10×10 or 100 M1 indep $\pi \times r^2$ where r is 5, 4.4 or 4.5 M1 dep Subtraction of the two areas. Dependent on both first two M1's **or** *Alternative method* Alt. M1 $r \times r$ where r is 5, 4.4 or 4.5 M1 ind $\frac{1}{4} \pi \times r^2$ where r is 5, 4.4 or 4.5 M1 dep $4 \times$ subtraction of the two areas. Dependent on both first two M1's Follow one method only. **or** W3 art 36.4 or art 39.2 www

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0580, 0581	11

17	**(a)**		D plotted at (3, 7)	1	Within 1 mm by eye.
	(b)		$\begin{pmatrix} -4 \\ 4 \end{pmatrix}$	2ft	1 mark for each component −1 if in working, no brackets
	(c)		$\begin{pmatrix} 3 \\ 3 \end{pmatrix}$	1cao	SC1 Both **(b)** and **(c)** correct but written as coordinates.
18	**(a)**	**(i)**	Isosceles	1	
		(ii)	Equilateral	1	
	(b)		2 or two	1	Allow order (=) 2
	(c)		Correct horizontal and vertical **ruled** lines. By eye and to or beyond the edges of the plan.	1, 1	SC1 **Both** freehand and 'correct' accuracy by eye to or beyond edge of the plan **or** both short of the full figure. −1 for each additional line.
19	**(a)**		14	2	M1 for $350 \times 4 \div 100$ **or** M1 for $350 - (350 \times 96 \div 100)$
	(b)	**(i)**	335	2	M1 Attempt at sum of the 5 values ÷ 5
		(ii)	334	1cao	SC1 for mean and median correct but reversed
		(iii)	25	1cao	

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2009 question paper

for the guidance of teachers

0580, 0581 MATHEMATICS

0580/12, 0581/12   Paper 1 (Core), maximum raw mark 56

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	Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
		IGCSE – May/June 2009	0580, 0581	12

Abbreviations

cao	correct answer only
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isw	ignore subsequent working
oe	or equivalent
SC	Special Case
soi	seen or implied
ww	without working

Qu.		Answers	Mark	Part Marks
1		>	1	(accept ≥ or both symbols)
2	**(a)**	0.00153(48….) or 0.001535 or $1.53(4…) \times 10^{-3}$ or 1.535×10^{-3}	1	
	(b)	5.84×10^{-2}	1cao	
3		17	2	M1 for $3500 \div 200$ or $3.5 \div 0.2$
4		30	2	M1 for $a + 5a = 180$ or $6a = 180$ or $5a + 5a + a + a = 360$ or better
5		8.999…. to 9	2	M1 for 158.5 **or** 167.499… to 167.5 seen
6	**(a)**	3	1cao	
	(b)	$y = 3x$ oe	1ft	Allow $y = 3x + 0$ or $y = 3x - 0$ Must be an equation. i.e. $y = …..$
7		328 ± 2 (ie 326 to 330)	2	W1 for **angle** of 32 ± 2 or 58 ± 2 or 148 ± 2 seen on diagram or in working or in the answer space.
8		9.64 or 9.643(6…) or 9.644	2	M1 for $17^2 - 14^2$ as chosen method. Alt. Trig must be complete correct method for M1.
9		35.68	2cao	M1 $30700 \div 79.6$ SC1 for 2840(KES). Units need to be seen in the working or on answer line.
10	**(a)**	$13c - 12d$ www	2	M1 for $20c - 12d - 7c$ or better or W1 for $13c$ or $-12d$ seen as terms in **final** answer
	(b)	$m(m - n)$ www	1	

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	(b)	$\frac{(7\times8-5\times9)}{their\,63}$ oe	M1	
		$\frac{11}{63}$ final answer	A1ft	ft their (a)
12	(a)	$(z =) - 13$	1cao	
	(b)	$(x =) \dfrac{z+y}{2}$ oe final answer	2	M1 for $z + y = 2x$ or $\dfrac{z}{2} = x - \dfrac{y}{2}$ or $-2x = -z - y$ SC1 for answer of form $\dfrac{\pm z \pm y}{\pm 2}$
13	(a)	Correct ruled line with correct arcs and at 30° to 34° to the line *AB*.	W2	W1 for correct ruled line, 30° to 34° to *AB* **(i)** with correct arcs but short of *BC* **or (ii)** reaching *BC* with wrong or absent arcs.
	(b)	105(m) to 112.5(m)	1ft	$15 \times$ their *DB* ($\pm$2mm)
14	(a)	81	1cao	
	(b)	64	1cao	
	(c)	87	1cao	
	(d)	73	1cao	
15	(a)	$24d^5$ final answer	2	W1 for $24d^n$ ($n \neq 0$) or kd^5 ($k \neq 0$)
	(b)	$4t^7$ final answer	2	W1 for $4t^n$ ($n \neq 0$) or kt^7 ($k \neq 0$)
16		21.45 to 21.6 www	4	M1 10×10 or 100 M1 indep $\pi \times r^2$ where *r* is 5, 4.4 or 4.5 M1 dep Subtraction of the two areas. Dependent on both first two M1's **or** *Alternative method* M1 $r \times r$ where *r* is 5, 4.4 or 4.5 M1 ind $\frac{1}{4}\pi \times r^2$ where *r* is 5, 4.4 or 4.5 M1 dep $4 \times$ subtraction of the two areas. Dependent on both first two M1's Follow one method only. **or** W3 art 36.4 or art 39.2 www

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	(c)	$\begin{pmatrix} 3 \\ 3 \end{pmatrix}$	1cao	SC1 Both **(b)** and **(c)** correct but written as coordinates.
18	**(a) (i)**	Isosceles	1	
	(ii)	Equilateral	1	
	(b)	2 or two	1	Allow order (=) 2
	(c)	Correct horizontal and vertical **ruled** lines. By eye and to or beyond the edges of the plan.	1, 1	SC1 **Both** freehand and 'correct' accuracy by eye to or beyond edge of the plan **or** both short of the full figure. −1 for each additional line.
19	**(a)**	18	2	M1 for $360 \times 5 \div 100$ **or** M1 for $360 - (360 \times 95 \div 100)$
	(b) (i)	335	2	M1 Attempt at sum of the 5 values ÷ 5
	(ii)	334	1cao	SC1 for mean and median correct but reversed
	(iii)	25	1cao	